

BOURNS PRECISION POTENTIOMETERS

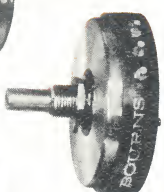
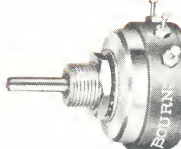
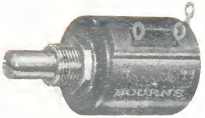
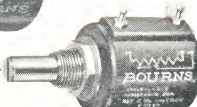
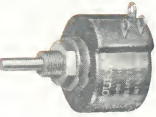
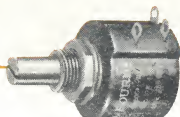
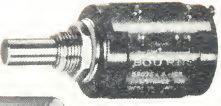


PRECISION POTENTIOMETER SHORT FORM CATALOG NO. 3

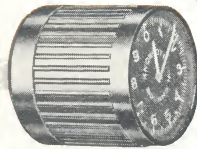
OCTOBER, 1965

BOURNS, Inc. TRIMPOT DIVISION, RIVERSIDE, CALIF. 92507

BOURNS® BUSHING-MOUNT POTENTIOMETER

MODEL		DESCRIPTION	RESISTANCE ^① (OHMS)	TOLERANCE (%)	LINEARITY (%)	ELECTRICAL AND MECHANICAL ROTATION	MECHANICAL LIFE (CYCLES)	POWER (WATTS)	MAXIMUM OPERATING TEMP. RANGE (°C)
3400		1 1/8" dia., 10 turns	100-250K 500K 1 meg	±3	±0.15	3600° (+4°/-0°)	100,000	5.0 at 40°C	-65 to +105
3410		2" dia., Single turn	50-100K	±3	±0.3	350° (±2°) ^③	500,000	4.0 at 70°C	-65 to +125
3430		1 1/8" dia., Single turn	50-10K 20K-50K 100K	±3	±0.5	350° (±2°) ^③	500,000	1.5 at 70°C	-65 to +125
3440		3" dia., Single turn	100-100K 200K 500K	±3	±0.25	350° (±2°) ^③	500,000	6.0 at 70°C	-65 to +125
3500		7/8" dia., 10 turns	50-125K 150K, 250K 500K	±3	±0.2	3600° (+10°/-0°)	100,000	2.0 at 70°C	-65 to +125
3501		7/8" dia., 10 turns INFINITRON® Element	1K-500K	±5	±0.5	3600° (+10°/-0°)	500,000	2.0 at 70°C	-65 to +125
3510		7/8" dia., 3 turns	25-50K 100K	±3	±0.30	1080° (+10°/-0°)	100,000	1.0 at 70°C	-65 to +125
3520		7/8" dia., 5 turns	25-75K 100K 250K	±3	±0.30	1800° (+10°/-0°)	100,000	1.5 at 70°C	-65 to +125
3530		7/8" dia., Single turn	25-20K 50K	±3	±0.50	350° (±2°) ^③	500,000	1.0 at 70°C	-65 to +125
3507		7/8" dia., 10 turns	100 to 100K 250K	±5	±0.50	3600° (+10°/-2°) ^④	10,000	2.0 at 25°C	-55 to +105
3700		1/2" dia., 10 turns	50-100K 250K	±5	±0.25	3600° (+10°/-0°)	50,000	1.0 at 70°C	-65 to +125
3707		1/2" dia., 10 turns	100-100K	±5	±1.0	3600° (+10°/-5°)	10,000	1.0 at 40°C	-55 to +105

BOURNS KNOBPOT® (CLOCK FACE) POTENTIOMETER

MODEL		DESCRIPTION	RESISTANCE (OHMS)	TOLERANCE (%)	DIAL ACC. (%)	DIAL REPEATABILITY (% V/R)	ELECTRICAL AND MECHANICAL ROTATION	MECHANICAL LIFE (CYCLES)	POWER (WATTS)	MAXIMUM OPERATING TEMP. RANGE
3600		3/4" dia., 10 turns	100-100K 150K, 200K 250K	±5	±0.5	0.1	3600° (+10°/-0°)	10,000	1.5 at 25°C	-65 to +
3640		1 1/4" dia., 10 turns	100-250K 500K	±3	±0.1	0.05	3600° (+10°/-0°)	10,000	2.5 at 25°C	-65 to +

① Special resistances are available above and below the standard range shown. Consult factory for price and technical information.

② Std. Models exceed steady state requirements of MIL-STD-203, METHOD 103. Optional models are available meeting humidity cycling requirements of MIL-STD-202, METHOD 106.

③ Mechanical rotation continuous.

④ Electrical rotation only.

© 1965 BOURNS, Inc. LITHO IN U.S.A.

POTENTIOMETERS

HUMIDITY (MIL-R-12934C)	SHOCK	VIBRATION	SIZE (INCHES) DIA.- CASE LENGTH	PRICES				
				1-9	10-24	25-49	50-99	100-249
Yes	50G	10G	1 1/8 x 1 1/4	10.00 19.00 28.00	9.50 18.05 26.60	9.00 17.10 25.20	8.50 16.15 23.80	8.00 15.20 22.40
Yes	50G	15G	2 x 5/8	19.00	18.05	17.10	16.15	15.20
Yes	50G	15G	1 1/8 x 5/8	24.00 33.00 42.00	22.80 31.35 39.90	21.60 29.70 37.80	20.40 28.05 35.70	19.20 26.40 33.60
Yes	50G	15G	3 x 5/8	22.00 31.00 40.00	20.90 29.45 38.00	19.80 27.90 36.00	18.70 26.35 34.00	17.60 24.80 32.00
Yes ②	100G	20G	7/8 x 1	10.00 19.00 28.00	9.50 18.05 26.60	9.00 17.10 25.20	8.50 16.15 23.80	8.00 15.20 22.40
Yes ③	100G	20G	7/8 x 1	13.75	13.06	12.38	11.69	11.00
Yes ②	100G	20G	7/8 x 5/8	15.00 33.00	14.25 31.35	13.50 29.70	13.50 29.70	12.75 28.05
Yes ②	100G	20G	7/8 x 1 1/8	13.50 22.50 31.50	12.83 21.38 29.93	12.15 20.25 28.35	11.48 19.13 26.78	10.80 18.00 25.20
Yes	50G	15G	7/8 x 1/2	9.00 27.00	8.55 25.65	8.10 24.30	7.65 22.95	7.20 21.60
No	50G	10G	7/8 x 1 1/8	7.50 16.50	6.50 14.52	6.25 13.74	5.95 13.08	5.50* 12.09*
Yes	100G	20G	1/2 x 1	24.50 32.00	23.28 30.40	22.05 28.80	20.83 27.20	19.60 25.60
No	50G	10G	1/2 x 1	12.50	11.88	11.25	10.63	10.00

* 100-499

POTENTIOMETERS

HUMIDITY (MIL-R-12934C)	SHOCK	VIBRATION	SIZE (INCHES) DIA.- CASE LENGTH	PRICES				
				1-9	10-24	25-49	50-99	100-249
Yes	50G	10G	3/4 x 1	20.52 30.24	19.00 28.00	17.10 25.20	16.23 23.91	15.20 22.40
Yes	50G	10G	1 1/4 x 1 1/2	20.52 30.24	19.00 28.00	17.10 25.20	16.23 23.91	15.20 22.40

BOURNS SERVO-MOTORS

MODEL	DESCRIPTION	RESISTANCE (OHMS)	TOLERANCE (%)
3450	2" dia., 10 turns	100-500K 1 Meg	±3
3460	2" dia., Single turn	50-100K	±3
3480	1 1/8" dia., Single turn	50-10K 20K-50K 100K	±3
3490	3" dia., Single turn	100-100K 200K 500K	±3
3550	7/8" dia., 10 turns	50-100K 150K, 200K 250K, 500K	±3
3551	7/8" dia., 10 turns INFINITRON® Element	1K-500K	±5
3560	7/8" dia., 3 turns	25-50K 100K	±3
3570	7/8" dia., 5 turns	25-75K 100K 250K	±3
3580	7/8" dia., Single turn	25-20K 50K	±3
3750	1/2" dia., 10 turns	50-100K 250K	±5

ACCESSORIES

FOR KNOBPOT POTENTIOMETERS

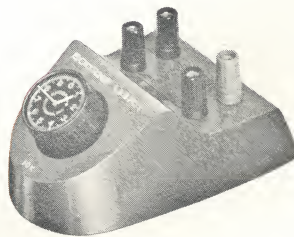
Part No.	Description	1-24	25-99	100-500	501-999
H-93 (3600) H-99 (3640)	Snap-on Color Rings*	.35	.30	.25	.20
*Per FED. STD. 595					
H-95 (3600) H-98 (3640)	Stainless Steel Skirt	1.50	1.25	1.00	.75
H-97 (3640) H-103 (3600)	Plastic Slip-over friction brake	1.25	1.07	.97	.90
H-100	MIL-SPEC 1-inch diameter slip- over Knob (Model 3600 only)	1.25	1.07	.97	.90
H-101 (3600) H-102 (3640)	Stainless Steel Recessed Mounting Bracket	1.25	1.07	.97	.90

LINEARITY (%)	ELECTRICAL AND MECHANICAL ROTATION	MAXIMUM GANGING (CUPS)	MECHANICAL LIFE (CYCLES)	POWER (WATTS)	MAXIMUM OPERATING TEMP. RANGE (°C)	HUMIDITY (MIL-R-12934C)	SHOCK	VIBRATION	SIZE (INCHES) DIA. - CASE LENGTH	PRICES				
										1-9	10-24	25-49	50-99	100-249
±0.15	3600° (+3°/−0°)	5	100,000	5.0 at 70°C	−65 to +125	Yes	50G	10G	2 x 2¼	20.00 29.00	19.00 27.55	18.00 26.10	17.00 24.65	16.00 23.20
±0.3	350° (±2°)③	19	500,000	4.0 at 70°C	−65 to +125	Yes	50G	15G	2 x ¾	21.00	19.95	18.90	17.85	16.80
±0.5	350° (±2°)③	19	500,000	1.5 at 70°C	−65 to +125	Yes	50G	15G	1½ x ¾	29.00 38.00 47.00	27.55 36.10 44.65	26.10 34.20 42.30	24.65 32.30 39.95	23.20 30.40 37.60
±0.25	350° (±2°)③	8	500,000	6.0 at 70°C	−65 to +125	Yes	50G	15G	3 x ¾	24.00 33.00 42.00	22.80 31.35 39.90	21.60 29.70 37.80	20.40 28.05 35.70	19.20 26.40 33.60
±0.20	3600° (+10°/−0°)	5	100,000	2.5 at 70°C	−65 to +125	Yes	100G	20G	¾ x 1½	20.00 29.00 38.00	19.00 27.55 36.10	18.00 26.10 34.20	17.00 24.65 32.30	16.00 23.20 30.40
±0.5	3600° (+10°/−0°)	5	500,000	2.0 at 70°C	−65 to +125	Yes	100G	20G	¾ x 1½	31.00	29.45	27.90	26.35	24.80
±0.25	1080° (+10°/−0°)	8	100,000	1.5 at 70°C	−65 to +125	Yes	100G	20G	¾ x 1¾	20.00 38.00	19.00 36.10	18.00 34.20	18.00 34.20	17.00 32.30
±0.25	1800° (+10°/−0°)	6	100,000	2.0 at 70°C	−65 to +125	Yes	100G	20G	¾ x 1¾	18.50 27.50 36.50	17.58 26.13 34.68	16.65 24.75 32.85	16.65 24.75 32.85	15.73 23.38 31.03
±0.5	350° (±2°)③	24	1,000,000	1.0 at 70°C	−65 to +125	Yes	50G	15G	¾ x ¾	25.00 43.00	23.75 40.85	22.50 38.70	21.25 36.55	20.00 34.40
±0.25	3600° (+10°/−0°)	0	50,000	1.0 at 70°C	−65 to +125	Yes	100G	20G	½ x 1½	34.00 41.50	32.30 39.43	30.60 37.35	28.90 35.28	27.20 33.20

Part No. Jack	Clear		Shaft Dia.	Brake	1-9	10-24	25-99	100- 249
I-411	H-461		$\frac{1}{4}''$	No	7.75	7.36	6.98	6.59
I-412	H-462		$\frac{1}{4}''$	Yes	8.95	8.50	8.06	7.61
I-421	H-471		$\frac{1}{8}''$	No	7.75	7.36	6.98	6.59
I-422	H-472		$\frac{1}{8}''$	Yes	8.95	8.50	8.06	7.61
I-431	H-481		$\frac{3}{32}''$	No	8.10	7.70	7.29	6.89
I-432	H-482		$\frac{3}{32}''$	Yes	9.30	8.84	8.37	7.91

Part No.	Description	1-9	10-24	25-99	100-249
-351	10-Turn, clock-dial readout. Accepts $\frac{1}{8}$ " or $\frac{3}{32}$ " Dia. shafts.	8.00	7.60	7.20	6.40
-353	Adapter for shaft extensions	.50	.48	.45	.40
-354	Turns Counting Dial with brake	8.50	8.08	7.65	6.80
-355	Snap-on Color rings ^o	.35	.35	.30	.25

A compact, dial-readout precision potentiometer designed as a convenient tool for a variety of laboratory applications. Incorporates Bourns exclusive KNOBPOT potentiometer for high readability through its unique "clock-dial" face. Portable, lightweight, yet remains firmly in place when in use. Large five-way binding posts permit easy hookup of any kind of leads. Fused for protection against burnout. An extra fuse is provided inside for added convenience.



Std. Resistances. 100 Ω , 1K, 10K, 100K
(others available on request)

Resistance Tolerance $\pm 1\%$

Dial Accuracy..... 20% 100 Ω , 15% 1K,
 10% 10K and 100K

Repeatability $\pm .05\%$ voltage ratio

Operating Temp. Range -65 to
 +125°C

Power Rating 2.5W at room temp.

Mechanical Life 200,000 dial rev.

Weight 14 ounces

Prices 1-9 10-24 25-49 50-99
 42.20 40.20 36.00 34.16

QUALITY DESIGN

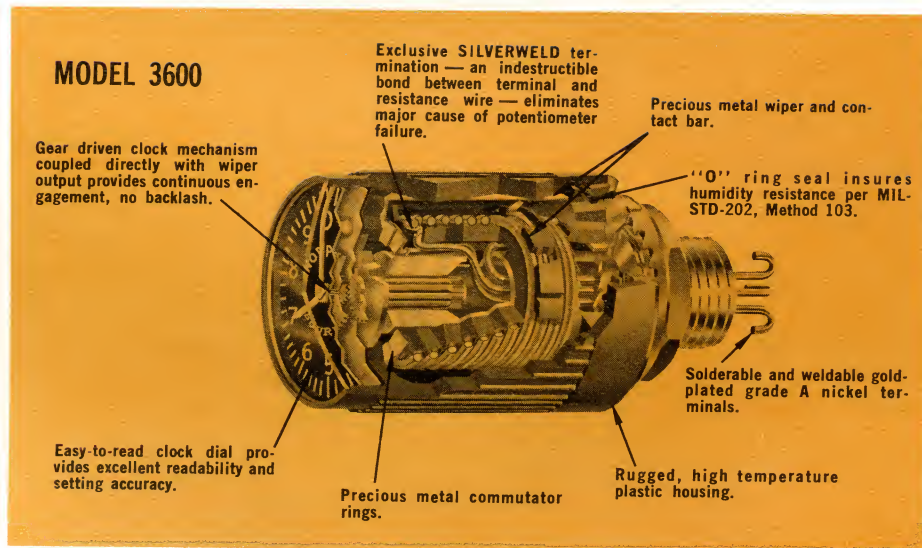
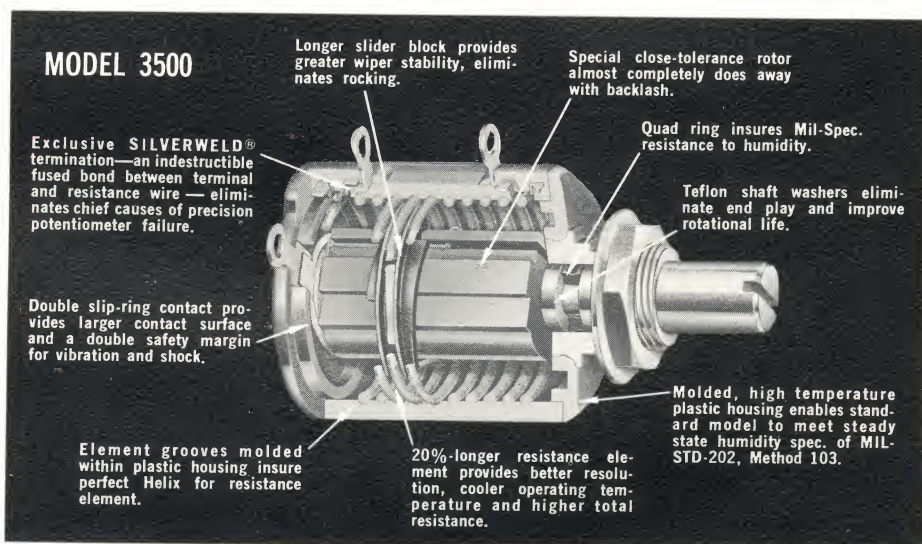
The construction details shown in the cut-a-way drawings of the Model 3500 and 3600 are not necessarily descriptive of all models, but are typical of the design features found in Bourns precision potentiometers. These high-reliability features have evolved through Bourns long experience in the potentiometer field—specifically through the Company's capability in producing quality miniature parts, precision plastic moldings, and dependable seals.

QUALITY CONTROL

All units are individually inspected to guarantee full conformance to all key physical and electrical specifications. Contact force (wiper and collector ring) is set on each unit to assure low noise levels and reliable performance for a minimum of 100,000 cycles or 2 million shaft rotations.

RELIABILITY ASSURANCE

A final measure of quality is Bourns Reliability Assurance Testing Program—the most stringent in the potentiometer industry. Random samples are selected from stock and checked for stability and performance under extreme conditions of cold, humidity, shock and vibration—each condition at the limit of published specifications. Load life and rotational tests are also performed. This unique reliability program is your final guarantee that Bourns components meet or exceed published standards of performance and reliability.



OTHER PRODUCTS BY BOURNS

TRIMPOT® ADJUSTMENT POTENTIOMETERS

Model	Trade Name	Terminals*	Tolerance (%)	Power Rating (Watt)	Max. Operating Temp. (°C)	Adj. Turns	Humidity Proof (Mil. Spec)	Size (Inches) H W L	Standard Resistances (Ohms)
200	TRIMPOT	L, S, P	±10	0.50	105	25	Steady State Only	5/16 1/4 1-1/4	10-100K
215	TRIMPOT	L, S, P	±20	0.25	125	22	Steady State Only	5/16 1/4 1-1/4	5K-5 Meg
260	TRIMPOT	L, S, P	±10	1.00	175	25	Steady State Only	5/16 1/4 1-1/4	10-100K
235	TRIMPOT	L, S, P	±20	0.25	125	22	Yes	23/64 19/64 1-11/32	5K-5 Meg
236	TRIMPOT	L, S, P	±10	0.80	135	25	Yes	23/64 19/64 1-11/32	10-100K
220	TRIMPOT	L, W	±5	1.00	175	15	Yes	5/16 3/16 1	10-30K
224	TRIMPOT	L, S, P	±5	1.00	175	22	Yes	5/16 3/16 1-1/4	10-100K
3000	TRIMPOT	P	±10	0.50	175	15	Yes	5/16 5/32 3/4	50-20K
3001	TRIMPOT	P	±20	0.20	150	15	Yes	5/16 5/32 3/4	20K-1 Meg
3010	TRIMPOT	L, P	±5	1.00	175	25	Yes	5/16 9/32 1-1/4	10-100K
3011	TRIMPOT	L, P	±20	0.25	150	22	Yes	5/16 9/32 1-1/4	5K-5 Meg
3012	TRIMPOT	L, P	±10	1.00	175	25	Yes	5/16 9/32 1-1/4	2K-1 Meg
3051	TRIMPOT	L, S, P	±20	0.25	150	22	Yes	5/16 3/16 1-1/4	5K-5 Meg
3052	TRIMPOT	L, P	±10	1.00	175	25	Yes	5/16 3/16 1-1/4	2K-1 Meg
3053	TRIMPOT	L, S	±10	0.50	175	25	Yes	5/16 3/16 1-1/4	20-200 2-200
3070	TRIMPOT	H, P, S, L	±5	1.50	175	10	Yes	5/16 5/16 1-1/16	100-50K
3250	TRIMPOT	L, P, W	±5	1.00	175	25	Yes	3/16 1/2 1/2 7/32 1/2 1/2	10-50K
3251	TRIMPOT	L, P, W	±20	0.50	150	25	Yes	3/16 1/2 1/2 7/32 1/2 1/2	20K-1 Meg
3260	TRIMPOT	H	±5	0.2	175	11	Yes	11/64 1/4 1/4	10-20K

Model	Trade Name	Terminals*	Tolerance (%)	Power Rating (Watt)	Max. Operating Temp. (°C)	Adj. Turns	Humidity Proof (Mil. Spec)	Size (Inches) H W L	Standard Resistances (Ohms)
3280	TRIMPOT	L, P, W	±5	1.00	175	25	Yes	13/64 3/8 3/8	10-50K
3281	TRIMPOT	L, P, W	±20	0.5	150	25	Yes	13/64 3/8 3/8	20K-1 Meg
3300	TRIMPOT	P	±5	0.50	175	1	Yes	5/16 dia x 3/16 5/16 dia x 15/32	10-20K
3301	TRIMPOT	P	±20	0.25	150	1	Yes	5/16 dia x 3/16 5/16 dia x 15/32	10K-1 Meg
3367	TRIMPOT	P	±5	0.50	105	1	Steady State Only	1/2 dia x 15/64 1/2 dia x 35/64	10-20K
3368	TRIMPOT	P	±20	0.25	105	1	Steady State Only	1/2 dia x 15/64 1/2 dia x 35/64	20K-1 Meg
3257	TRIMPOT	L, P, W	±10	0.25	105	25	No	3/16 1/2 1/2	10-50K
271	TRIMIT	L, S, P	±10	0.50	105	25	No	5/16 1/4 1-1/4	50-20K
272	TRIMIT	L, S, P	±20	0.20	105	25	No	5/16 1/4 1-1/4	5K-5 Meg
3067	E-Z-TRIM	S, P	±10	0.50	85	15	No	23/64 9/32 1	50-20K
3068	E-Z-TRIM	S, P	±20	0.20	85	15	No	23/64 9/32 1	20K-1 Meg
207	TRIMPOT	L	±10	2.00	175	25	No	13/16 9/32 1-1/4	100-100K
3020	TRIMPOT	L	±5	3.75	200	25	Yes	21/64 1/4 1-1/4	100-50K
209	TWINPOT	L	±10	0.5 (each element)	135	25	No	5/16 1/2 1-1/4	10-50K
3040	TRIMPOT	W	±10	5.00	350	17	No	3/8 19/64 1-1/4	500-20K

*Key to terminal types: L—Insulated stranded leads; S—Solder lugs (includes panel mounting bushing on Models 3367, 3368, 3300 & 3301 only); P—Printed circuit pins; W—Uninsulated wires (edge mounting 3250, 3251, 3260 & 3281).
†TRIMPOT, TRIMIT, E-Z-TRIM, TWINPOT, are Registered Trademarks of Bourns, Inc.

RELAYS AND TIME DELAYS

RELAYS	Model 3100	Model 3101	TIME DELAYS	Model 3900	Model 3907	Model 3908
Size:	.2" x .4" x .6"	.2" x .4" x .6"				
Max. Oper. Temp:	125°C	125°C				
Contacts:	SPDT; Rating 1.0 amp resistive, 26.5 VDC	DPDT; Rating 1.0 amp resistive, 26.5 VDC	Time delay range: 20 to 30 VDC 10 ⁵ cycles	0.1 - 200 seconds 20 to 30 VDC 10 ⁶ cycles	0.1 - 200 seconds 20 to 30 VDC 10 ⁶ cycles	0.1 - 200 seconds 20 to 30 VDC 10 ⁶ cycles
Coil resistances:	50Ω to 2000Ω	65Ω to 2000Ω	Nominal voltage: Life (min.) Output	10 ⁵ cycles DPDT Relay	SPST NO—Solid State	DPDT Relay
Pick-up sensitivity:	100 milliwatts 40 G standard, 3000 CPS	160 milliwatts 40 G standard, 3000 CPS	Contact rating:	1 ampere resistive at 26.5 VDC.	0.05 ampere resistive at 26.5 VDC, 120°C; 0.150 amp at 25°C	1 ampere resistive at 26.5 VDC.
Vibration:	150G	150G	Ambient temp. range:	—55 to +120°C	—55 to +120°C	—40 to +85°C
Shock:	150G	150G				

MICROCOMPONENTS

Resistor	Capacitor	Inductor	Transformer
Range 1K-200K	10 pf to 12 mf	0.1 Hy-66 Hy	400 CPS-250K CPS
Tolerance ±1% — ±10%	±10% & ±20%	—65° to +130°C	—65° to +130°C
Temp Range —65° to +150°C	—55° to +150°C	0.250" Cube	0.250" Cube
Rating 0.07Watt at 100°C	200 W. VDC	MIL-T-27B	MIL-T-27B
Size 0.1" x 0.03" x 0.05"	Variable		
Environmental MIL-R-10509D	MIL-C-11015C		

CUSTOM FILM HYBRID CIRCUITS

Now you can get custom micro-circuits from Bourns for virtually any application! Our total capability — conductive, resistive, capacitive and magnetic — can satisfy your custom circuit needs at lowest possible cost! Standard flat-pack configurations eliminate special tooling and insure rapid delivery.



VOLTAGE SENSORS

	MODEL 3910	MODEL 3917
Trigger voltage range:	0 to 1000 VDC	0 to 1000 VDC
Supply Voltage:	20-30 VDC	20-30 VDC
Life:	10 ⁵ operations	10 ⁶ operations
Output:	DPDT Relay	SPST NO — Solid State
Contact Rating:	1 ampere at 26.5 VDC	0.05 ampere at 30 VDC
Ambient temp. range:	—55 to +105°C	—55 to +105°C

QUADRATRON® EXPONENTIAL RESISTORS

Bourns new QUADRATRON exponential resistor generates a multitude of nonlinear mathematical functions when used as an input or feedback element with DC operational amplifiers. Multiply and divide, and obtain square, square root, sine, cosine, and many other functions.